Knight. (C. H.)

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REPRINTED FROM

The New York Medical Journal

for July 13, 1889.

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THE DIAGNOSIS AND TREATMENT OF CERTAIN FORMS OF RHINITIS.*

By CHARLES H. KNIGHT, M.D.

Since we have learned to recognize the intimate relations between the nose and other organs, the importance of nasal pathology is in danger of being overestimated. Instances of nasal reflex have multiplied to an alarming extent. Asthma, chorea, epilepsy, ocular and aural disturbances, headache, and laryngeal affections are familiar examples. It seems that the list of ills for which the nose is to be held responsible is not limited to neuroses. An attempt has been made to show that intestinal hernia may be caused by intra-abdominal pressure resulting from constant hawking, coughing, and sneezing, provoked by chronic obstruction or disease of the nares.† A condition, perhaps not very uncommon, termed by Guye,‡ of Amsterdam, "aprosexia," is said to depend upon nasal disease. It consists, as the name implies, of inability to fix the attention, is accompanied by marked physical and mental depression, and is supposed to result from obstruction of the lymphatics

* Read before the Section in Laryngology of the New York Academy of Medicine, May 28, 1889.

† W. Freudenthal, "Monatsschr. für Ohrenheilk.," etc., No. xi, 1887.

‡ "Deutsche med. Wochenschr.," No. 43, 1887.

which pass from the brain to the nasal fossæ. Hack, whose observations in the department of nasal neuroses have been especially numerous, goes so far as to propose treating certain joint affections through the nasal mucous membrane, and it has even been affirmed that such a disease as primary laryngitis does not exist, nasal stenosis or a nasal lesion invariably being found to act as a predisposing cause of simple inflammation of the larynx. Yet, making due allowance for the play of imagination on the part of the observer and of the patient, it must be admitted that nasal lesions aggravate and even excite phenomena in other regions remote from as well as in proximity to the nose. There seems to be no fixed proportion, as regards importance, between the nasal trouble and the associated disorder. Serious nervous phenomena sometimes appear to depend upon comparatively trifling structural change within the nasal fossæ. On the other hand, extensive intranasal disease may fail to produce reflex or other disturbance, and it is not unusual to discover extreme abnormal conditions within the nose the existence of which had not been suspected. In the presence of a decided pathological condition or deformity, such as a collection of polypi or a well-defined ridge or deviation of the septum, it may be quite safe to assume that an asthma, a frontal headache, impaired hearing, or a more serious neurosis, may depend upon the local lesion and will disappear on its removal. Independently of these grosser lesions, it seems to be an established fact that certain changes limited to the mucous membrane may excite neurotic phenomena. A satisfactory explanation of the relation of cause and effect here displayed can be reached only through a study of the physiology and pathology of the sympathetic nervous system.

Without entering upon a discussion of this question, it has seemed to me that we might profitably give a few mo-

ments to a consideration of the changes referred to, which may be included under the terms hyperæmia, hypertrophy, and hyperplasia. Although one or more of these pathological conditions is conspicuous in every case of rhinitis, yet no little confusion exists regarding the meaning and application of these terms, and clinically the conditions are separated by no fixed line, but merge into each other by imperceptible gradations.

Hyperæmia is defined as "preternatural accumulation of blood in the capillary vessels, more especially local plethora"—in other words, "congestion."

Hypertrophy is "the state of a part in which the nutrition is performed with greater activity, and which, on that account, at length acquires unusual bulk." Finally, hyperplasia is "excess of formative action." Dunglison, from whom these definitions are taken, says that "hyperplasia relates to the formation of *new* elements, hypertrophy being an increase in bulk of pre-existing normal elements." For this reason the former has been called "numerical hypertrophy," the enlargement of the part being due to increase of the number of elements entering into its composition. The word hyperæmia is used to include both capillary congestion and distension of the venous sinuses of the turbinated bodies, the so-called "erectile tissue." The latter process is to a certain degree physiological. In simple hypertrophy there is merely increase of bulk as a result of increased functional activity, but the word is also employed to designate enlargement from prolonged irritation. In the latter sense it may properly include both hyperplasia and hyperæmia, as just defined. But in true hypertrophy, function is more active, while in hyperplasia it is impaired. This distinction is of special interest in connection with a rather sweeping assertion recently made by a distinguished authority to the effect that in all cases of chronic nasal

catarrh secretion is actually diminished. The most striking example of genuine hypertrophy is seen in the turbinated enlargement projecting toward the concave side of a deviated septum. At first glance the deflection would seem to be a result of the hypertrophy, whereas the reverse is generally if not always true. As guardian of the inferior meatus, the inferior turbinated body must increase its dimensions as the bending septum expands the nasal cavity. So with increased function we have increased bulk. Strictly speaking, "hypertrophy" should be reserved to describe conditions of this kind, but its application to all forms of thickening of the nasal mucous membrane is to some extent authorized by long usage, and it may now be difficult if not impossible to restrict it within proper limits. Perhaps one excuse for retaining the word hypertrophy as a synonym for hyperplasia is that the former is more euphonious. It should be understood, however, that it is not ordinarily applied to simple vascular engorgement of the turbinated body, although it may be in reality more appropriate to that condition. Clinically, therefore, we mean by "hypertrophy" a condition of permanent thickening of the mucous membrane due to the existence of more or less hyperplasia.

From a therapeutic standpoint it is important that we should distinguish between hyperplasia, or hypertrophy, and hyperæmia with turgescence of the turbinated "erectile tissue." Persistence of the last-mentioned condition leads to the former, and here preventive medicine is offered a most inviting field. How may we arrest the tendency of chronic hyperæmia of the nasal mucous membrane to pass on to a condition causing perpetual discomfort to its victim, and requiring for its cure rare patience and endurance on the part of all concerned? To begin with, it is essential that we should be familiar with the objective appearances of

these conditions. The subjective symptoms may not much differ, except as regards duration and intensity, but, by combining the information gained by the eye, by touch with the probe, and by the use of cocaine, we may usually discriminate. It may be difficult to assign certain cases which occupy the border line to their proper class, but we may at least determine which type predominates. Hyperæmia finds its typical representation in the condition popularly known as a "cold in the head"—acute catarrhal rhinitis. But, as a matter of fact, persons thus affected seldom consult a physician, so that clinically we most often meet with it in those already suffering from chronic rhinitis. Consequently, the same subject often offers us a field for the study of various pathological conditions, the same nasal cavity exhibiting at one point simple hyperæmia, at another the changes of chronic inflammation. Possibly, too, in neglected cases, or in those affected with a constitutional disease, still another region may have reached that unfortunate condition of atrophy, with its unmistakable symptoms. Admitting, therefore the possible concurrence of these different conditions in the same individual, we shall more fully realize the importance of identifying them and adapting to each, as far as possible, its appropriate treatment.

It is unnecessary to review all the symptoms of the various forms of rhinitis. I merely wish to remind you of certain distinctive features met with in a rhinoscopic examination. The special points to be noted are the color of the surface, the character of the nasal secretion, the extent and shape of the swelling, its density or resistance, its sensitiveness, and its vascularity. Inspection shows the color of the parts in hyperæmia to be intensely red, and the secretion, after the first stage, is copious and fluid. The tumefaction is uniformly globular, easily compressed, usually

quite sensitive, and it bleeds readily on rough contact with the probe. In hyperplasia the color of the surface is less intense, it is often livid or purplish, and in advanced cases it is quite apt to be paler than normal. The swelling may have an irregular contour, owing to variation in the amount of new tissue at different points, and is usually neither very sensitive nor very vascular. Occasionally the membrane becomes distinctly lobulated or papillated. This is most commonly seen at the posterior extremity of the inferior turbinated body, where the shape and color of the tumor have caused it to be compared to a mulberry. Its appearance in the rhinoscopic mirror is pathognomonic. This variety may be exceptionally vascular, and we sometimes observe quite protracted bleeding after the use of the snare in such cases. The nasal secretion is apparently increased, because of the fact that it has become less fluid and more tenacious, and hence is apt to be retained within the nasal cavities. Undoubtedly, with increase of hyperplastic tissue and consequent interference with the function of the glands of the mucous membrane, the secretion is not only perverted in quality, but notably diminished in quantity. Here the cause is largely mechanical. Decrease of secretion may also be observed in certain forms of rhinitis, without marked hyperplasia. In the latter case the interruption of function is perhaps of neurotic origin. The contrast in the behavior of hyperæmia and hyperplasia on pressure with a probe and under cocaine is very striking. The hyperæmic swelling yields readily to pressure, and quickly recovers its shape as the blood-vessels refill. The hyperplastic swelling is much more solid and resistant, lacks the smooth, tense appearance of the former, and is capable of relatively slight compression. The tissues do not give way to the probe, and on the removal of pressure the furrow made by the instrument is slowly effaced. A similar phe-

nomenon is observed with cocaine. The hyperæmic swelling rapidly shrinks to the subjacent bone. In hyperplasia the mucous membrane can not contract more than may be permitted by the new connective tissue. In this way cocaine has become a most valuable addition to our diagnostic resources. It is also of great service in connection with treatment, by mapping out the regions more particularly affected by structural changes. By attention to the foregoing points we may escape at least two errors—first, that of operating with a snare on a simple vascular swelling of the turbinated body, and, second, that of attempting to cure a case of confirmed hyperplastic rhinitis by means of sprays and local medications.

In considering the treatment of these conditions it is impossible to exaggerate the influence of constitution and diathesis. Consequently, general therapeutics, diet, and hygiene must not be neglected. Occupation, habits, and climate are in many cases important factors, and should receive due attention.

Local treatment with sprays, douches, vapors, medicated bougies, ointments, and powders may be used according to the taste or credulity of the practitioner. It may be accepted as a first principle in nasal therapeutics that simple catarrhal rhinitis should receive only the most unirritating applications. In general, everything more than momentarily painful should be avoided. Sedative steam inhalations and preparations of medicated vaseline or oil are usually most grateful and least harmful. Fluid albolene, a petroleum product recently introduced, is an elegant vehicle for many of the more useful medicaments, which may be applied in the form of spray or vapor. Astringents, though largely used, are of doubtful value. Cocaine gives temporary relief by removing stenosis, but there is reason to suspect that its frequent and habitual use may do serious damage. Antipyrine has

recently been recommended by Hinkel,* and it seems to possess antiseptic, sedative, and hæmostatic properties. Its anæsthetic effect is said to resemble that of cocaine, being less marked but more protracted.

The use of sprays has been discarded by some whose opinion is worthy of regard. My own belief is that much of the discredit which has befallen the spray arises from the fact that too much is expected of it. We hear to-day of cases of chronic catarrhal rhinitis cured in a few weeks by sprays of medicated vaseline. There must be something peculiarly antagonistic in the climate of New York, since I am not acquainted with any one here who works these miracles. Again, there is no doubt that damage may be done by excessive air pressure and improper medication, and thus the disrepute of the spray be still further extended. But under proper precautions the spray is a valuable, if not an essential, adjuvant in the treatment and cure of catarrhal conditions. I use the word *cure* with hesitation, since we must all recognize the difficulty of entirely eliminating climatic and seasonal elements, and some of our spring cures are likely to return to us for treatment with the first bleak winds of autumn. In those obstinate cases of chronic turgescence on the border line of hyperplasia linear cauterization, superficial or submucous, may be required. My experience with the latter and with interstitial injections of carbolic acid, ergotine, etc., has been very limited. Reports from certain observers are favorable, yet the precise advantage of these methods is not quite clear.

When, in spite of treatment, or perhaps in consequence of treatment, or as a result of repeated attacks of inflammation, hyperplasia has supervened, these measures are seldom sufficient. The mass of newly formed tissue, which interferes with the functions of the nose, must be removed by

* "New York Medical Journal," Oct. 20, 1888.

surgical methods or destructive agents. The knife, the saw, scissors, drills, the snare, the galvano-cautery, and various chemical caustics may be selected from, according to the indications in each case. At the same time strict cleanliness and asepsis should be maintained by means of frequent irrigations with Dobell's solution or a similar detergent, or weak solutions of bichloride of mercury. It is an excellent rule in these cases to make haste slowly; not attempt to do too much at one sitting. It is much easier to repeat the operation than to restore tissue which has been destroyed. The danger of establishing a condition of atrophy should always be remembered. What we desire to accomplish is not merely the removal of obstruction, but also the restoration, if possible, of normal secreting function. While the morbid process is still confined to the mucous membrane, caustics, of which chromic acid is just now the favorite, and the galvano-cautery will be found most useful. The removal of more extensive hyperplasia may be most readily effected by means of the cold wire snare. In my experience, as a general rule, hypertrophies which can not be engaged in the loop of the snare without the aid of transfixion needles may be more easily reduced by the galvano-cautery. I prefer to use a very slender electrode at a white heat. Thus the field is not obscured by a clumsy instrument and the tissue is rapidly destroyed. If the space between the walls of the nasal fossa is very narrow the septum should be protected by an ivory shield, or we may use one of the specially devised nasal specula. The heated cautery point buries itself in the tissues, and its detachment is often followed by bleeding, generally insignificant.

In this respect it is superior to the cold wire snare. With the latter, hæmorrhage, very slight at first, is apt to be considerable in the course of a few hours. This seems to

me to have been especially noticeable since the introduction of cocaine. Moreover, cocaine sometimes shrinks the tissues to such a degree as to greatly increase the difficulty of applying the snare. It may be suggested that cocaine might be used *after* the adjustment of the loop, but in that case, the first steps of the operation often being the most painful, one might as well dispense with the anæsthetic altogether. When the bone has become involved the cold wire snare will frequently answer every purpose, but in some cases the saw, the nasal trephine, and the various forms of surgical drill will do the work more quickly and with but little if any more pain.

In this brief review it has been impossible to mention all the therapeutic resources at our command. My object has been merely to suggest the general principles and a few of the details which guide me in my own practice.

In conclusion, I would speak a word of caution regarding the indiscriminate boring, sawing, and cutting of the nasal passages now in vogue. It is not my purpose to decry intranasal surgery. On the contrary, it is my firm conviction that the most brilliant results may be expected from a judicious resort to surgical expedients in suitable cases, but it has been my misfortune to see irreparable damage done and the most serious risks assumed in the reckless use of certain engines of destruction recently placed at our disposal. What, then, are the indications for surgical intervention in intranasal disease? The answer comes naturally enough when we recall to mind the functions of the nose. Its primary and most important function is respiratory; therefore any obstacle in the nasal passage which compels breathing through the mouth must be removed. Secondarily, it is the organ of olfaction, and the sense of smell is not infrequently impaired by conditions which demand surgical treatment. Furthermore, in a limited number of cases,

remote disturbances, reflex neuroses, may result from conditions which may not abolish or apparently disturb these special functions. Here also surgery may be our only resource. Finally, a neoplasm, a deformity, or a hypertrophy may encroach upon the nasal passage, but perhaps not enough to seriously or consciously incommode the patient. The secretions are retained and act as irritants to the mucous membrane. In such case nasal drainage must be restored by surgical measures. In many cases these indications are unmistakably clear. In others we may be able to decide upon the best mode of treatment only after the most careful study. The present tendency in nasal therapeutics is certainly in the direction of "pernicious activity," and it seems to me that the final condition of a large proportion of cases subjected to modern methods is, if anything, worse after they have escaped our hands. It is surprising with what comfort some people wear their crooked noses until the inquisitive rhinologist makes his ingenious pathological discovery. Every septum that is bent or thickened does not need to be planed down or straightened. Every turbinated body that is enlarged does not need to be snared or cauterized. If the temptation to meddle with them is too strong to be resisted, milder measures may perhaps avail with more comfort to our patients and greater credit to ourselves.

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EDITED BY FRANK P. FOSTER, M. D.,

Published by D. APPLETON & CO., 1, 3, & 5 Bond St.

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